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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/921,471	08/03/2001	David Marshall	10014782-1	7017

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Intellectual Property Administration  
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EXAMINER

NGUYEN, MINH T

ART UNIT	PAPER NUMBER
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2816

DATE MAILED: 10/21/2002

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Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/921,471

Applicant(s)

MARSHALL ET AL.

Examiner

Minh Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 30 July 2002.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 8-13 is/are allowed.
- 6) ☒ Claim(s) 1-7 and 14-22 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 August 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Response to Amendment***

1. Applicants' amendment filed on 7/30/02 has been received and entered in the case. The amendment and argument presented therein overcome the informality objections, and therefore, are withdrawn. In view of the reconsideration, new grounds of rejections are needed, as set forth below. This action is NON-FINAL.

### ***Specification***

2 The disclosure is objected to because of the following informalities: in paragraph 12, line 3, "high low voltage" should be changed to -- high voltage --.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 14-15 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for a method of controlling a reference voltage which comprises the steps of comparing an input voltage with the reference voltage, using the result of the comparing step to control a counter to control a MUX, selecting the reference voltage based on certain criteria,

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does not reasonably provide enablement for a method of controlling a reference voltage which comprises a single step of tracking the input voltage and the reference voltage. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to perform the invention commensurate in scope with these claims.

Claims 16-18 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for a specific circuit for tracking an input voltage as shown in Fig. 3 of the drawings, does not reasonably provide enablement for every conceivable means for achieving the stated purpose. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to practice the invention commensurate in scope with these claims. The claim covers every conceivable structure (means) for achieving the stated result while the specification discloses at most only those known to the inventor, i.e., the one shown in Fig. 3. Please see MPEP 2164.08(a) for further explanation.

The adding of “a reference voltage” and “a received voltage” to these claims are not considered to overcome the rejection because these adding “function as mere description of the single claimed means”, see *In re Hyatt*, 218 USPQ 195.

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 4 and 6 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

As per claims 4 and 6, it is unclear if the terms “parameter” used in the claims refer to anything else besides the “voltage” disclosed in the specification. Clarification is requested.

***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 4, 6 and 18-21 are rejected under 35 U.S.C. 102(b) as being anticipated by US Patent No. 5,233,329, issued to Lippmann et al.

As per claim 1, Lippmann discloses a method (Fig. 1), comprising:

moving a reference voltage from a first voltage level to a second voltage level wherein the second voltage level is closer to a received voltage level than the first voltage level (the reference voltage on line 31 is changed from the higher to lower (from node 18 to 22) when the received voltage level is moving higher)

comparing the reference voltage to the received voltage level to determine a digital stage of the received voltage level (use comparator 30 to output a high or low result).

As per claim 4, Lippmann discloses a method (Fig. 1), comprising:

comparing a parameter (the voltage level) of an input signal (on line 39) to a parameter (the voltage level) of a reference (on line 31) to determine a logical state of the input signal (the result is at the output of the comparator 30); and

adjusting the parameter of the reference (MUX 28 and counter 32) to reduce the difference.

As per claim 6, Lippmann discloses a method (Fig. 1), comprising:

comparing (the comparator 30) a parameter of an input signal (the level voltage of the input signal on line 39) to a parameter of a reference (the reference voltage level on line 31) to determine a logical state of the input signal, the limitation that the parameter of the input signal has a nominal value representing a logical low and a nominal value representing a logical high is merely a definition and is met when defining a certain voltage level on line 39 representing a logical high and another certain voltage level on line 39 representing a logical low;

adjusting (the MUX 28) the parameter of the reference (change the voltage level of the reference on line 31) to reduce a difference, the limitation on the last three lines is met because it is merely the result operation of the circuit.

As per claim 18, Lippmann discloses a circuit (Fig. 1) comprising:

means (the circuit shown in Fig. 1) for moving a reference voltage (on line 31) from a first voltage level (B) to a second voltage level (A) wherein the second voltage level A is closer to a received voltage level (on line 39) than the first voltage level and wherein the reference voltage 39 is compared (by the comparator 30) to the received voltage level to determine a digital state of the received voltage level (using the counter 32).

As per claim 19, Lippmann discloses a circuit (Fig. 1) comprising:

a differential receiver 30 that compares an input signal 39 (generated by a sensor 38) and a reference signal 31 (the signal from the output of MUX 28); and

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a reference signal control (the circuits 32, 34, 28 and 16) responsive to said differential receiver that adjusts the reference signal over a period of time to approach the input signal (the signal from the output of the differential receiver 30 controls the UP/DOWN counter to select the appropriate reference voltage for use as a reference signal 31).

As per claim 20, Lippmann further discloses the reference signal control comprises:

a saturating counter 32 wherein the count direction of the counter is responsive to the differential receiver (because the output signal from the differential receiver controls the UP/DOWN counter selection); and

an analog MUX 28 responsive to said saturating counter (the signal on line 36 selects the either the reference signal) that selects one of a plurality of input voltages (A and B).

As per claim 21, the recited resistive ladder reads on the resistor ladder 16.

### ***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2-3, 5, 7 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent No. 5,233,329, issued to Lippmann et al.

As per claim 22, Lippmann discloses a circuit which has the structure recited in the claim as discussed in details above regarding claim 20 wherein the saturating counter 32 is clocked by a clock signal CLK which is supplied on line 43.

Lippmann does not explicitly disclose that the clock signal has a period that is much less than the minimum expected time for the input signal to remain in on logical state as called for in the claim, i.e., the claim calls for a specific range of frequencies of the clock signal.

However, it has been ruled that “where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation.”. See MPEP 2144.05 for further discussions.

It would have been obvious to one skilled in the art at the time of the invention was made to clock the counter by a clock signal having a period that is much less than the minimum expected time for the input signal to remain in on logical state.

The motivation/suggestion for that would be to obtain an optimum performance for Lippmann’s circuit.

As per claims 2 and 7, these claims are rejected for the same reason and motivation discussed in claim 22.

As per claim 3, the recited step is performed by the MUX 28, i.e., switching the output signal from B to A.

As per claim 5, Lippmann discloses a method comprises steps discussed in claim 4 above but he does not explicitly disclose that the difference between the parameters of the reference and the input signal maintains a nonzero minimum difference as called for in the claim.

However, this limitation is seen as obvious since when the difference is zero, the output of the comparator 30 is unpredictable.



It would have been obvious to one skilled in the art at the time of the invention was made to ensure that the difference between the parameters of the reference and the input signal maintains a nonzero minimum difference so that the circuit always functioned as expected.

### ***Response to Arguments***

7. Applicant's arguments filed 7/30/02 have been fully considered but they are not persuasive.

Regarding the argument that claim 1 calls for "a second voltage level that is closer to a received voltage level". The examiner notes that consider the first voltage level at node 18 and the second voltage level at node 22, it is clear that the second voltage level is closer to the received voltage level than the first voltage level.

Regarding the argument claims 4 and 6 call for "adjusting ... to reduce a difference ...". The examiner notes that when the voltage on line 31 carries the voltage at node 22 instead of the voltage at node 18, the difference is reduced.

### ***Allowable Subject Matter***

8. Claims 8-13 are allowed.

Claims 8-9 are allowed because the prior art of record fails to disclose or suggest the step of reducing the reference voltage after the digital signal has changed from being greater than the reference voltage from being less than the reference voltage as called for in claim 8. The prior art of record appears to teach the opposite.

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Claims 10-11 are allowed because the prior art of record fails to disclose or suggest the step of increasing the reference voltage after the digital signal has changed from being less than the reference voltage from being greater than the reference voltage as called for in claim 10. The prior art of record appears to teach the opposite.

Claims 12-13 are allowed because the prior art of record fails to disclose or suggest the steps of comparing the signal to a first or second nominal reference level which is closer to the level of the signal as recited in claim 12.

### ***Conclusion***

9. As per claims 14-17, the prior art of record appears to disclose the limitation “increasing the difference between the reference voltage and the received voltage level” whereas claims 14-17 called for “decreasing the difference between the reference voltage and the received voltage level”, however, due to the serious 112, first paragraph problems noted in Section 5 above, patentability over prior art of claims 14-17 cannot be determined in this Office Action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Minh Nguyen whose telephone number is 703-306-9179. The examiner can normally be reached on Monday - Thursday 7:00-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Callahan can be reached on 703-308-4876. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9318 for regular communications and 703-872-9319 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

A handwritten signature in black ink, appearing to read 'Minh Nguyen', with a long horizontal stroke extending to the right.

Minh Nguyen  
Examiner  
Art Unit 2816

MN  
October 19, 2002